



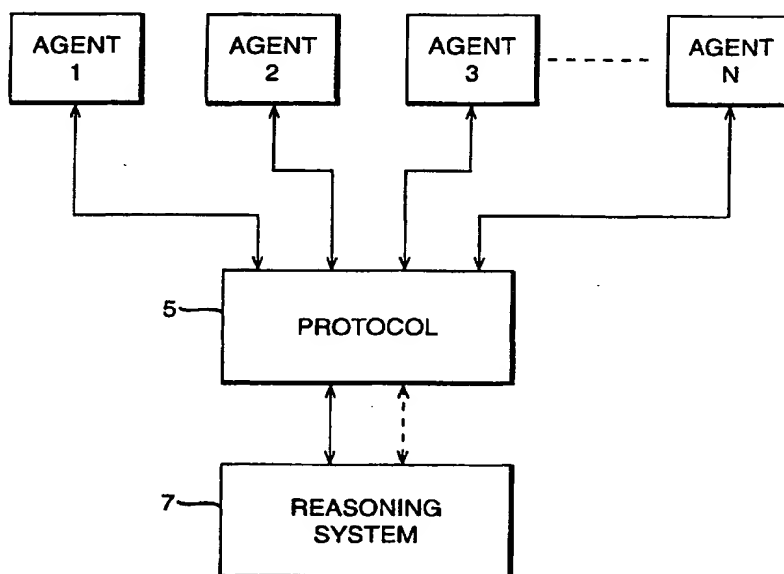
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁷ : G06F 17/60		A1	(11) International Publication Number: WO 00/25242
			(43) International Publication Date: 4 May 2000 (04.05.00)
(21) International Application Number: PCT/GB99/03528 (22) International Filing Date: 25 October 1999 (25.10.99) (30) Priority Data: 9823321.6 23 October 1998 (23.10.98) GB (71) Applicant (for all designated States except US): UNIVERSITY OF BRISTOL [GB/GB]; Senate House, Tyndall Avenue, Bristol BS8 1TH (GB). (72) Inventor; and (75) Inventor/Applicant (for US only): VULKAN, Nir [GB/GB]; Pembroke Grove Cottage, Pembroke Grove, Clifton, Bristol BS8 3DA (GB). (74) Agents: WATKIN, Timothy, L. et al.; Mewburn Ellis, York House, 23 Kingsway, London WC2B 6HP (GB).		(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.	

(54) Title: METHOD AND APPARATUS FOR NEGOTIATING USING AN ELECTRONIC COMMUNICATION NETWORK

(57) Abstract

Parties negotiate using an electronic network, such as the world wide web. A set of hypotheses describing the negotiation is generated, either at a central location or by one of the parties. The hypotheses are each associated with a confidence value. For example, the hypotheses may describe the types of parties negotiating, or their objectives. The negotiation can then be controlled using the confidence values, either by using the confidence values to control the protocol (framework) of the negotiation, or by one of the parties basing its negotiating strategy on the confidence values. The confidence values, and even the hypotheses themselves, can be updated according to observations during the course of the negotiation.



↔ ON-LINE COMMUNICATION

- - - - - OFF-LINE COMMUNICATION

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
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CF	Central African Republic	JP	Japan	NE	Niger	VN	Viet Nam
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CZ	Czech Republic	LC	Saint Lucia	RU	Russian Federation		
DE	Germany	LI	Liechtenstein	SD	Sudan		
DK	Denmark	LK	Sri Lanka	SE	Sweden		
EE	Estonia	LR	Liberia	SG	Singapore		

INTERNATIONAL SEARCH REPORT

International Application No.

PCT/GB 99/03528

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G06F17/60

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>WO 98 43190 A (IBM) 1 October 1998 (1998-10-01) page 8, line 1 -page 12, line 34</p>	1-23
P,X	<p>JUNG D ET AL: "An architecture for distributed cooperative planning in a behaviour-based multi-robot system" ROBOTICS AND AUTONOMOUS SYSTEMS,NL,ELSEVIER SCIENCE PUBLISHERS, AMSTERDAM, vol. 26, no. 2-3, 28 February 1999 (1999-02-28), pages 149-174, XP004159058 ISSN: 0921-8890 page 154, column 2, line 21 -page 155, column 2, line 25</p>	1-23

☒ Further documents are listed in the continuation of box C.

X Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

6 March 2000

Date of mailing of the international search report

16/03/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax (+31-70) 340-3018

Authorized officer _____

Pedersen, N

INTERNATIONAL SEARCH REPORT

Intern. Patent Application No.

PCT/GB 99/03528

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>ZLOTKIN G ET AL: "Negotiation with incomplete information about worth: strict versus tolerant mechanisms" PROCEEDINGS OF INTERNATIONAL CONFERENCE ON INTELLIGENT AND COOPERATIVE INFORMATION SYSTEMS (CAT. NO.93TH0474-7), PROCEEDINGS OF INTERNATIONAL CONFERENCE ON INTELLIGENT AND COOPERATIVE INFORMATION SYSTEMS, ROTTERDAM, NETHERLANDS, 12-14 MAY 1993, pages 175-184, XP002132261 1993, Los Alamitos, CA, USA, IEEE Comput. Soc. Press, USA ISBN: 0-8186-3135-X page 177, column 2, line 16 -page 184, column 1, line 16</p>	1-23
A	<p>FARATIN P ET AL: "Negotiation decision functions for autonomous agents" ROBOTICS AND AUTONOMOUS SYSTEMS,NL,ELSEVIER SCIENCE PUBLISHERS, AMSTERDAM, vol. 24, no. 3-4, 30 September 1998 (1998-09-30), pages 159-182, XP004140670 ISSN: 0921-8890 page 159, line 1 -page 164, line 23</p>	1-23
A	<p>BINMORE K ET AL: "Applying game theory to automated negotiation" NETNOMICS, BALTZER, NETHERLANDS, vol. 1, no. 1, 5 October 1998 (1998-10-05), pages 1-9, XP002132262 ISSN: 1385-9587 Retrieved from the internet: <http://searchpdf.adobe.com/proxies/0/34/4/68.html> 3 March 2000. page 1, line 1 -page 8, line 8</p>	1-23

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 99/03528

Patent document cited in search report	Publication date	Patent family member ()	Publication date
W0 9843190 A	01-10-1998	NONE	

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents
United States Patent and Trademark
Office
Box PCT
Washington, D.C.20231
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 21 June 2000 (21.06.00)	
International application No. PCT/GB99/03528	Applicant's or agent's file reference TRC/BP5809009
International filing date (day/month/year) 25 October 1999 (25.10.99)	Priority date (day/month/year) 23 October 1998 (23.10.98)
Applicant VULKAN, Nir	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:

16 May 2000 (16.05.00)

☐ in a notice effecting later election filed with the International Bureau on:
2. The election ☒ was
☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

S. Mafla

Telephone No.: (41-22) 338.83.38

REC'D 23 NOV 2000

WIPO

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

15

Applicant's or agent's file reference TRC/BP5809009		See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
FOR FURTHER ACTION		
International application No. PCT/GB99/03528	International filing date (day/month/year) 25/10/1999	Priority date (day/month/year) 23/10/1998
International Patent Classification (IPC) or national classification and IPC G06F17/60		
Applicant UNIVERSITY OF BRISTOL et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.


2. This REPORT consists of a total of 10 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☒ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☐ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand 16/05/2000	Date of completion of this report 21.11.2000
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80299 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Krischer, S Telephone No. +49 89 2399 7484



INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/GB99/03528

I. Basis of the report

1. This report has been drawn on the basis of *(substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments (Rules 70.16 and 70.17).):*

Description, pages:

1-55 as originally filed

Claims, No.:

1-24 as originally filed

Drawings, sheets:

1-11 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/GB99/03528

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

- ☐ the entire international application.
☒ claims Nos. 1-24.

because:

- ☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):
- ☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 1-24 are so unclear that no meaningful opinion could be formed (*specify*):
see separate sheet
- ☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.
- ☐ no international search report has been established for the said claims Nos. .

2. A meaningful international preliminary examination report cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

- ☐ the written form has not been furnished or does not comply with the standard.
☐ the computer readable form has not been furnished or does not comply with the standard.

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/GB99/03528

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Re Item III

Non-establishment of opinion with regard to novelty, inventive step and industrial applicability for claims 1-5

- 1 For independent claims 1, 4, 15, 20, 21 and 22, the reasons are set out in section VIII.
- 2 Since the dependent claims refer to invalid independent claims, no opinion can be established either.

Re Item VII

Certain defects in the international application

- 3 Reference is made to the following document:

D1 ZLOTKIN G ET AL: 'Negotiation with incomplete information about worth: strict versus tolerant mechanisms' PROCEEDINGS OF INTERNATIONAL CONFERENCE ON INTELLIGENT AND COOPERATIVE INFORMATION SYSTEMS (CAT. NO.93TH0474-7), PROCEEDINGS OF INTERNATIONAL CONFERENCE ON INTELLIGENT AND COOPERATIVE INFORMATION SYSTEMS, ROTTERDAM, NETHERLANDS, 12-14 MAY 1993, pages 175-184, XP002132261 1993, Los Alamitos, CA, USA, IEEE Comput. Soc. Press, USA ISBN: 0-8186-3135-X
- 4 Independent claims 1, 4, 15, 20, 21 and 22 are not in the **two-part form** in accordance with Rule 6.3(b) PCT, which in the present case would be appropriate, with those features known in combination from the prior art (document D1) being placed in the preamble (Rule 6.3(b)(i) PCT) and with the remaining features being included in the characterising part (Rule 6.3(b)(ii) PCT).
- 5 The features of all claims are not provided with **reference signs** placed in parentheses (Rule 6.2(b) PCT).
- 6 Contrary to the requirements of Rule 5.1(a)(ii) PCT, the **relevant background art**

disclosed in the document D1 is not mentioned in the description, nor is this document identified therein.

Re Item VIII

Certain observations on the international application

- 7 The application does not meet the requirements of Article 6 PCT, because independent claims 1, 4, 15, 20, 21 and 22 are **not clear**.
- 8 **Clarity of claim 1:**
- 8.1 The expression "**numerical confidence value**" (line 10) is unclear. This is not a generally known and well defined technical term. A skilled person is unable to know how to compute such an unspecified value by an unspecified algorithm. The **essential steps of the algorithm** for computing this value should have been defined in the claim.
- 8.2 The claim attempt to define the subject-matter in terms of the **result to be achieved** which merely amounts to a statement of the underlying problem: the claim contains a step of "**regulating** the negotiation" (line 13) in a "method of **regulating** negotiation" (line 3). The **technical features** necessary for achieving this result are **missing**.
- 8.3 It is not clear what the expressions "**proposition**" (line 6) and "**hypothesis**" (line 8) mean in the context of a negotiation.
- 9 **Clarity of claim 4:**
- 9.1 The clarity objections of claim 1 apply accordingly.
- 9.2 The claim attempt to define the subject-matter in terms of the **result to be achieved** which merely amounts to a statement of the underlying problem: the claim contains a step of "**negotiating**" (line 7) in a "method of **negotiating**" (line 24). The **technical features** necessary for achieving this result are **missing**.

10 Clarity of claim 15:

10.1 The following expressions are unclear:

- "**monitoring**" (line 4): Is "displaying" (or "outputting") meant? If so, what data should be displayed? How is this data computed?
- "**comparing** the actual negotiation to the negotiating propositions" (line 9): In which values or physical measures are these abstract concepts counted and compared?
- "a **characteristic** of the negotiation": There is a very high number of characteristics of a negotiation. Which one are of interest for the method? Even the characteristic "liability", stated in claim 16, is unclear since this term is not a well-defined technical term and a skilled person does not now how to measure the "liability".

10.2 The objections concerning "**propositions**", "**hypothesis**" (lines 7, 8) raised for claim 1 apply accordingly.

11 Clarity of claim 20:

11.1 It is not clear what is meant by "**linking**" (line 23). Are the symbolic or hard links as in the UNIX operating system meant? Or world wide web hyperlinks? However, both kinds of links seem not to be supported by the description.

11.2 The claim attempt to define the subject-matter in terms of the **result to be achieved** which merely amounts to a statement of the underlying problem: the claim contains a step of "**linking**" (line 6) in a "method of **linking**" (line 23). The **technical features** necessary for achieving this result are **missing**.

11.3 The following expressions are unclear:

- "available **data**" (line 23): Which data is meant? How is this data computed?
- "expected **behaviour**" (line 23): Whose behaviour? What is the formal definition of such a "behaviour"?

11.4 The objections concerning "**numerical confidence value**", "**propositions**", "**hypothesis**" (lines 26, 1) raised for claim 1 apply accordingly.

12 Clarity of claim 21:

12.1 The objections concerning method claim 1 apply accordingly to apparatus claim 21 since claim 21 only contain means that correspond to steps of claim 1.

13 Clarity of claim 22:

13.1 The objections concerning method claim 4 apply accordingly to apparatus claim 22 since claim 22 only contain means that correspond to steps of claim 4.

14 Conciseness:

14.1 Although **method claims 1, 4, 15 and 20** and **apparatus claims 21 and 22** have been drafted as separate independent claims, they appear to relate effectively to the **same subject-matter** and to differ from each other only with regard to the definition of the subject-matter for which protection is sought or in respect of the terminology used for the features of that subject-matter. The aforementioned claims therefore **lack conciseness**. Moreover, lack of clarity of the claims as a whole arises, since the **plurality of independent claims makes it difficult**, if not impossible, to determine the **matter for which protection is sought**, and places an **undue burden** on others seeking to establish the extent of the protection.

14.2 As to method **claim 1**, it appears that method **claims 15** have technical features for which this claim has **no equivalent**, e.g. "a characteristic" (claim 15, line 10). As well, **claim 1** has features for which **claims 15** has no equivalent, e.g. "numerical confidence value" (line 10).

14.3 However, it is clear from the PCT that the invention for which protection is sought must be **clearly defined** in the claims (Article 6), and that such a definition is accomplished by specifying **all essential technical features in each independent claim** (Rule 6.3 PCT). It follows that when, as in this case, **only one invention** is disclosed and a technical feature is included in one independent

claim but there is **no equivalent in another independent claim**, it is **not clear** what technical features are actually necessary for **defining the invention**, thus putting the matter for which protection is sought into doubt, in violation of Article 6 (see also PCT Guidelines Chapter III 2.1, 3.3, 4.4).

14.4 Therefore, it would have been necessary for the applicant to present **in each category a single independent claim** to the invention, having corresponding features, with **dependent claims** as appropriate to cover the applicant's preferred **embodiments**.

15 **The description does not satisfy Article 5 PCT, i.e. that the invention is *not disclosed in sufficient detail* for a person skilled in the art to reproduce it.**

15.1 The description does **not disclose** how to perform **the two most important steps** of the method and apparatus for negotiation, which are the step of **computing numerical confidence values** and the step of **performing the negotiation using these values**.

There is only one passage in the description which states that "there *is* a value of (the set of confidence values) P for each of the hypotheses in (the set of possible states) S" (page 22, line 24) **without disclosing how** this values should be initially computed. Also, Figure 4 (second box from the top) merely states: "set initial values of $p(S_i)$ ". As well, the examples on pages 27-55 fail to teach a generally applicable algorithm for this task which is the basis for all other computations (e.g. the "updating" on pages 44-48).

No passage in the description can be found that teaches **how the negotiation** or the **regulation of a negotiation** should be done using the confidence values from P. It is **impossible** for a skilled person to use the claimed method, to construct the claimed apparatus, or to program the claimed computer program product without being taught **how the core** of the method/apparatus/program **works**.

15.2 The following **questions** arise when a skilled person tries to implement the invention:

- What are the "expectations" and the "available information" (Figure 4,

second box from the top) on which the setting of the initial values of $p(S_i)$ (i.e. the confidence values) is based? How are they determined? How are they measured?

- How is the negotiation result computed? Departing from which input data? By which algorithm? What are the computed output values? How do they depend on the input values?
- What is the "on-line new information" in the forth box from the top of Figure 4? How is it measured? How is the data-structure representing this "information"? How is it involved in further computations?
- How does the "reasoning system" (15) in Figure 6 work? What is its structure? How is it built? Does it perform the negotiation regulation task? If not, which other system performs this task? Does the "reasoning system" perform the task of negotiation? If not, which other system performs this task?

15.3 In order to overcome the above objections, **reasoned arguments with evidence** , should have been submitted that the person skilled in the art could **resolve all these questions, without inventiveness** on his part, from the prior art or the **current** description.

TENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference TRC/BP5809009	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/GB 99/ 03528	International filing date (day/month/year) 25/10/1999	(Earliest) Priority Date (day/month/year) 23/10/1998
Applicant UNIVERSITY OF BRISTOL et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the language, the International search was carried out on the basis of the International application in the language in which it was filed, unless otherwise indicated under this item.

☐ the International search was carried out on the basis of a translation of the International application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any nucleotide and/or amino acid sequence disclosed in the International application, the International search was carried out on the basis of the sequence listing:

☐ contained in the International application in written form.

☐ filed together with the International application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the International application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ Certain claims were found unsearchable (See Box I).

3. ☐ Unity of invention is lacking (see Box II).

4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this International search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☒ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

1
☐ None of the figures.

INTERNATIONAL SEARCH REPORT

National Application No

/GB 99/03528

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G06F17/60

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 98 43190 A (IBM) 1 October 1998 (1998-10-01) page 8, line 1 -page 12, line 34 ----	1-23
P,X	JUNG D ET AL: "An architecture for distributed cooperative planning in a behaviour-based multi-robot system" ROBOTICS AND AUTONOMOUS SYSTEMS,NL,ELSEVIER SCIENCE PUBLISHERS, AMSTERDAM, vol. 26, no. 2-3, 28 February 1999 (1999-02-28), pages 149-174, XP004159058 ISSN: 0921-8890 page 154, column 2, line 21 -page 155, column 2, line 25 ----- -/-	1-23

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

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Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
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INTERNATIONAL SEARCH REPORT

International Application No

P 99/03528

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>ZLOTKIN G ET AL: "Negotiation with incomplete information about worth: strict versus tolerant mechanisms" PROCEEDINGS OF INTERNATIONAL CONFERENCE ON INTELLIGENT AND COOPERATIVE INFORMATION SYSTEMS (CAT. NO.93TH0474-7), PROCEEDINGS OF INTERNATIONAL CONFERENCE ON INTELLIGENT AND COOPERATIVE INFORMATION SYSTEMS, ROTTERDAM, NETHERLANDS, 12-14 MAY 1993, pages 175-184, XP002132261 1993, Los Alamitos, CA, USA, IEEE Comput. Soc. Press, USA ISBN: 0-8186-3135-X page 177, column 2, line 16 -page 184, column 1, line 16</p>	1-23
A	<p>FARATIN P ET AL: "Negotiation decision functions for autonomous agents" ROBOTICS AND AUTONOMOUS SYSTEMS,NL,ELSEVIER SCIENCE PUBLISHERS, AMSTERDAM, vol. 24, no. 3-4, 30 September 1998 (1998-09-30), pages 159-182, XP004140670 ISSN: 0921-8890 page 159, line 1 -page 164, line 23</p>	1-23
A	<p>BINMORE K ET AL: "Applying game theory to automated negotiation" NETNOMICS, BALTZER, NETHERLANDS, vol. 1, no. 1, 5 October 1998 (1998-10-05), pages 1-9, XP002132262 ISSN: 1385-9587 Retrieved from the internet: <http://searchpdf.adobe.com/proxies/0/34/4/68.html> 3 March 2000. page 1, line 1 -page 8, line 8</p>	1-23

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9843190 A	01-10-1998	NONE	